UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

March 7, 2003

Colonel Ralph H. Graves
Corps of Engineers, Seattle District (Robinson)
P.O. Box 3755
Seattle, Washington 98124-2255

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the SR167: North Sumner Interchange Project.
(NOAA Fisheries No. WSB-00-572; COE No.1988-4-00422)

Dear Mr. Graves:

The attached document transmits the NOAA's National Marine Fisheries Service's (NOAA Fisheries) Biological Opinion (Opinion) on the proposed SR 167: North Sumner Interchange Project in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531). The United States Corps of Engineers (COE) determined that the proposed action was likely to adversely affect the Puget Sound (PS) chinook (*Oncorhynchus tshawytscha*) Evolutionarily Significant Unit (ESU).

This Opinion reflects formal consultation and an analysis of effects covering the PS chinook in the White River, Pierce County, Washington. The Opinion is based on information provided in the biological assessment sent to NOAA Fisheries by the COE and Washington State Department of Transportation on December 21, 2000, as well as subsequent information transmitted by telephone conversations and electronic mail. A complete administrative record of this consultation is on file at the Washington Habitat Branch Office.

NOAA Fisheries concludes that the implementation of the proposed project is not likely to jeopardize the continued existence of PS chinook. Please note that the incidental take statement, which includes reasonable and prudent measures and terms and conditions, was designed to minimize take. If you have any questions, please contact Barbara Wood of the Washington Habitat Branch Office at (360) 534-9307 or barb.wood@noaa.gov.

Sincerely,

for Michael R Course

D. Robert Lohn
Regional Administrator

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Fisheries Management Act - Essential Fish Habitat Consultation

BIOLOGICAL OPINION

WSB-00-572

SR 167: North Sumner Interchange
Pierce County, Washington

Agency: U.S. Army Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Approved by: for Michael R Crouse Date: March 7, 2003

D. Robert Lohn
Regional Administrator

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1.0 INTRODUCTION

This document transmits the National Oceanic And Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) Biological Opinion (Opinion) and Magnuson-Stevens Fisheries Management Act (MSA) consultations based on our review of the proposed State Route (SR)167 North Sumner Interchange project, located in the City of Sumner, Pierce County, Washington. The new interchange crosses Soaton Creek, a tributary to the White River, which drains into the Puyallup River. The Puyallup River drains into Commencement Bay and is located in the Puget Sound (PS) chinook (*Oncorhynchus tshawytscha)* Evolutionarily Significant Unit (ESU). Soaton Creek and White River are also Essential Fish Habitat (EFH) for chinook, coho (*O. kisutch*), and PS pink (*O. gorbuscha*) salmon.

1.1 Background and Consultation History

The U.S. Army Corps of Engineers (COE) proposes to issue a permit to the Washington State Department of Transportation (WSDOT). The COE permit would authorize WSDOT to fill approximately 1.0 acre of Category II and III wetlands. The purpose of the permitted project is to provide direct access from SR 167 to existing and future industrial areas in the north Sumner vicinity. The WSDOT has been designated as the non-Federal representative by the COE. WSDOT is also an applicant for the subject permit. The COE requested section 7 formal consultation, and WSDOT submitted the Biological Assessment (BA) and other related information on the COE's behalf. The City of Sumner is a co-applicant with WSDOT for the COE permit.

NOAA Fisheries received a BA from WSDOT dated December 21, 2000. On March 21, 2001, NOAA Fisheries sent a letter of non-concurrence on the "may affect, not likely to adversely affect" on the SR 167 North Sumner Interchange. On June 29, 2001, NOAA Fisheries sent a letter to COE requesting additional information regarding the proposed project. On March 8, 2002, NOAA Fisheries received the additional information from the COE and a letter initiating formal consultation (dated February 28, 2002). Additional information was received regarding details of culvert design, sedimentation analysis, floodplain designation, wetland mitigation sites, revegetation plan, and cumulative effects. Information necessary to initiate formal consultation was assembled, and NOAA Fisheries sent the COE a letter initiating formal consultation on May 16, 2002.

Additionally, numerous telephone conversations, meetings, e-mail correspondence, and site visits between staff of NOAA Fisheries, COE, WSDOT, Washington State Department of Wildlife (WDFW), Puyallup and Muckleshoot tribes, and the City of Sumner are documented in the administrative record.

1.2 Description of the Proposed Action

The COE proposes to permit, in whole or in part, a project to be constructed by WSDOT and the City of Sumner. WSDOT proposes to construct a new fully directional split diamond interchange near 24th Street in the City of Sumner, to provide direct access from SR 167 to existing and future industrial areas in the north Sumner vicinity.

The SR 167 North Sumner Interchange project will include the following activities:

- Construct a split diamond interchange connecting SR 167 to 24th Street East and the West Valley Highway. The interchange will consist of a new bridge crossing over SR 167 and Soaton Creek at 24th Street East; northbound on and off ramps located at 24th Street East; and southbound on and off ramps located at 28th Street East approximately 886 feet south of 24th Street. The southbound ramps will require two new culvert crossings of Soaton Creek. The northbound on-ramp will require the extension of existing Soaton Creek culverts.

- Widen 24th Street East to five lanes with curb, gutter, bicycle lanes and/or paths, and sidewalks between West Valley Highway and 142nd Avenue East. Improve the 24th Street East/142nd Avenue East intersection.

- Widen the West Valley Highway to four lanes between 24th Street East and the 28th Street East on and off ramps.

- Construction of a wetland creation and enhancement site in the vicinity of 32nd Street.

- Revegetation and placement of in-stream habitat structures in Soaton Creek.

- Rehabilitate Soaton Creek in the vicinity of 32nd Street by removal of two existing culverts, and headwalls.

- The City of Sumner will preserve approximately 37 acres of the 218 acres owned by the City of Sumner along the White River as open space. In addition, the remaining City owned property of approximately 181 acres will be developed to a maximum of 40% new impervious surface.

Construction is proposed to begin in the summer of 2003. This project has an anticipated construction length of approximately 420 working days. The project will occur over two construction seasons. Upon completion, the new interchange is expected to be a permanent structure with an expected life of approximately 20 years. The following is a brief description of the proposed construction activities.

1.2.1 Stormwater Control Construction

Temporary stormwater Best Management Practices (BMP) and permanent stormwater treatment and control facilities will be constructed. Approximately 17% of the stormwater will be discharged into the City of Sumner's new storm water system on 142nd Avenue East. All runoff discharged from stormwater systems will be treated before being discharged into Soaton Creek.

Stormwater BMPs will result in quality and quantity treatment for 10.8 acres (97%) of new impervious surface. Existing impervious surface area within the project limits is 4.5 acres. Of this, 0.54 acre (11.9%) is currently treated for quality only. This project will treat stormwater from approximately 2.5 acres (53%) of existing impervious surface for water quality and quantity, for a total of 150% of new impervious surface.

Permanent BMPs proposed for this project are:

- Bioswales – Bioswales are proposed along 24th Street East and the northbound off ramp to treat water runoff. Also, two flat bottom ditches, which are similar in function to bioswales, will treat the highway runoff.

- Filter Strips – Filter strips are proposed on all the ramps and ramp tapers to treat water before discharging into existing drainage ditches or proposed bioswales.

- Wet Pond – This BMP will treat both water quality and quantity. It will treat the highway runoff from the closed system on West Valley Highway. It consists of two cells separated by a weir.

1.2.2 Extension of Pipe Arches

Two 12-foot wide existing pipes under SR 167 will each be extended by 20 feet. Prior to extending the existing culverts, sediment in the bottom of the existing pipes will require maintenance dredging. The steel pipe arch extensions (Appendix K of the BA) under SR 167, north of 24th Street, will be constructed in the dry. Water diversion will be conducted with sand bags that will be used to divert stream flow into one pipe while extending the other pipe. In addition, the concrete headwalls for the extended culvert will be constructed while the streambed is dry. In addition, a culvert conveying a small stream/ditch will be extended by 30 feet, and the stream/ditch will be relocated.

1.2.3 Construction of New Steel Arches

Two new open bottom arch culverts 24 feet wide will be installed on Soaton Creek under the on and off ramps. The off ramp culvert is 111 feet long and the on ramp culvert is 88 feet long, with approximately 150 feet between the two new fixed structures (Appendix C and K of the BA). The foundations for the new steel arches will be constructed in the dry. This will involve placing a temporary culvert in the streambed and sand bagging the upper end to ensure all water goes in this temporary culvert. The areas where the foundations for the culverts are placed might need to be dewatered. All new concrete will be allowed to cure prior to water being allowed to flow through the new culverts.

1.2.4 Channel and Riparian Rehabilitation

The existing condition of the creek is a straight ditch vegetated with reed canary grass. Approximately 4.0 acres of Soaton Creek riparian area will be cleared of exotic vegetation (Appendix N of the BA). Exotic weed removal will require mowing and blading. WSDOT will plant approximately 2,099 feet of the riparian zone with native forbs/shrubs/trees, and a total of

20 habitat structures will be placed in the stream channel. Ten structures will be large rock and 10 Large Woody Debris (LWD). In addition, approximately 170 additional feet of Soaton Creek will be opened up. Two 12-foot pipe arch culverts will be removed along with approximately 3,021 cubic yards of fill material. This area will be restored with native vegetation.

1.2.5 Wetland Impacts and Mitigation

Construction of the new interchange will result in approximately 1.0 acre of impacts to a Category II and III wetlands. These impacts will be compensated for by creating/restoring 1.6 acres of wetland and enhancing 1.3 acres of Category III wetlands.

The wetland mitigation site is located at 32nd Street to the west of SR 167 and to the east of Soaton Creek. The site has been designed to allow off-channel habitat use by salmonid species at the mean annual storm event (Appendix F of the BA).

1.3 Interrelated and Interdependent Actions

Effects of the action are analyzed together with the effects of other activities that are interrelated to, or interdependent with the proposed action. An interrelated action is one that is part of the proposed action, or depends on the proposed action for its justification. An interdependent action is one that has no independent utility apart from the proposed action (50 CFR 402.02). While the construction of the subject interchange is associable with land use changes near the interchange, these land use changes are neither interrelated nor interdependent actions.

To determine whether or not the effects of other actions need be analyzed as those of interrelated or interdependent actions, NOAA Fisheries is instructed to ask whether the other actions (here, the nearby commercial development) would not occur "but for" the proposed larger action. See *Endangered Species Act* (ESA) *Consultation Handbook*, U.S. Fish and Wildlife Service (USFWS) and March 1998, pages 4-26 through 4-28. For this consultation, the "proposed action" is the issuance of a Federal permit that enables construction of the interchange. The question is whether the effects of nearby commercial development should be considered part of the proposed action. As stated in the BA, the purpose of the SR 167 interchange is to increase access to approximately 1000 acres of industrial zoned land. Access to the area already exists on local surface streets. The development of and construction on this land is ongoing and those effects are likely to occur regardless of the construction of the interchange. Therefore, NOAA Fisheries cannot conclude that nearby commercial development would not occur "but for" the construction of the interchange.

Furthermore, commercial development near the proposed interchange does not fit the definitions of interrelated or interdependent actions. Interrelated actions are part of the larger (proposed) action and depend on the proposed action for their justification. Commercial development near the interchange has been underway for several years and are clearly not a part of the interchange action. Interrelated actions have no independent utility apart from the proposed action. Commercial development has been and could certainly continue to proceed without construction of the interchange. The area is already accessible over existing local roads and therefore the development in the area has utility apart from the construction of the interchange.

In contrast to the tests described above for interrelated and interdependent actions, NOAA Fisheries believes that the effects of future development in the action area are indirect effects of the proposed actions, and are analyzed as such, below.

1.4 Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area also includes the adjacent riparian zone of the Soaton Creek and White River and all areas affected by the project including the staging area, catch basins, detention ponds, mitigation sites, and roadways.

To establish the action area, boundaries were developed based on the service area for the interchange as well as the worst-case potential limits of downstream effects from the direct impacts of the project on waterbodies and associated wetlands and floodplains. A downstream limit of approximately two miles from the nearest in-water work was evaluated as part of this project.

Jovita Creek, Soaton Creek, and the White River (RM 0.7 to 3.0) are included in the action area. The project area includes Soaton Creek (RM 0.0 to 2.2). Jovita Creek is a tributary to Soaton Creek. Soaton Creek drains into the White River at RM 1.3. Between RM 0.7 and 4.0 of the White River, there are four contributing tributaries. Soaton Creek is the only creek on the westbank of the White River. The Soaton Creek drainage is spring fed and encompasses approximately five square miles. Salmon Creek, one unnamed tributary, and the Puget Sound Energy's (PSE) Power Plant outfall (tailrace) at RM 3.6 all drain to the eastside of White River. All of these streams are considered fish-bearing streams.

2.0 ENDANGERED SPECIES ACT

2.1 Status of Species and Habitat

NOAA Fisheries completed a status review of chinook salmon from Washington, Idaho, Oregon, and California in 1998, which identified fifteen distinct Evolutionarily Significant Units (ESU) of chinook salmon in the region (Myers *et al.* 1998). After assessing information concerning chinook salmon abundance, distribution, population trends, risks, and protection efforts, NOAA Fisheries determined that chinook salmon in the Puget Sound ESU are at risk of becoming endangered in the foreseeable future. Subsequently, NOAA Fisheries listed Puget Sound chinook salmon as threatened (64 FR 14308, March 24, 1999). Prohibitions against take were applied later (65 FR 42422, July 10, 2000).

The Puget Sound ESU is a complex of many individual populations of naturally spawning chinook salmon, and 36 hatchery populations (64 FR 14308, March 24,1999). Recently, NOAA Fisheries' Puget Sound Technical Recovery Team (PSTRT 2001) identified 22 geographically distinct populations of chinook salmon in Puget Sound, including one in the White River. Through the recovery planning process NOAA Fisheries will define how many and which naturally spawning populations of chinook salmon are necessary for the recovery of the ESU as a

whole (McElhany *et al.* 2000). At this time, only five hatchery stocks are considered essential to the recovery of Puget Sound chinook salmon. The listed hatchery stocks are: Kendall Creek (spring run), North Fork Stillaguamish River (summer run), White River (spring run), Dungeness River (spring run), and Elwha River (fall run) (64 FR 14308, March 24, 1999).

In most streams within Puget Sound, both short- and long-term trends in chinook salmon abundance are declining. Overall abundance of chinook salmon in this ESU has declined substantially from historical levels and many populations are small enough that genetic and demographic risks are likely to be relatively high. Migratory blockages and degradation of freshwater habitat, especially in upper river reaches, has contributed to these reduced abundances. Widespread agriculture and urbanization have significantly altered the complexity of freshwater and estuarine habitats used by chinook salmon. Spring- and summer-run chinook salmon populations through the Puget Sound ESU have been particularly affected. These life histories have exhibited widespread declines throughout the ESU and some runs are believed extinct (Nehlsen *et al.* 1991; 64 FR 14308, March 24, 1999). These losses represent a significant reduction in the life history diversity of this ESU (64 FR 14308, March 24, 1999).

2.2 Evaluating the Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct and indirect mortality of fish attributable to the action. NOAA Fisheries' jeopardy analysis also considers the extent to which the proposed action affects the quantity and quality of salmonid habitat by assessing the functions of habitat elements necessary for migration, spawning, and rearing of the listed salmon under the existing environmental baseline.

2.2.1 Biological Requirements

The relevant biological requirements are those necessary for PS chinook to survive and recover to naturally reproducing population levels at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become

self-sustaining in the natural environment.

Biological requirements are considered habitat conditions that are relevant to any chinook life stage. These habitat conditions include water quality, riparian vegetation, channel disturbance, impervious surface and stormwater facilities, sediment transport, and channel morphology.

Information related to biological requirements for PS chinook can be found in Spence *et al.* 1996. Presently, the biological requirements of listed species are not being met under the environmental baseline. The biological requirements affected by the proposed action include the alteration of potential rearing habitat in Soaton Creek. PS chinook are expected to utilize Soaton Creek because it is spring fed and is properly functioning for temperature. However, there are no known surveys that have captured or identified PS chinook in Soaton Creek.

2.2.2 Status of the Species within the Action Area

The action area provides migration, spawning, and juvenile rearing for PS chinook in the White River. Spring chinook, as well as summer/fall chinook spawn in the White River project bypass reach (RM 3.6), upriver from the confluence of Soaton Creek. Soaton Creek is suspected to be used by rearing chinook.

Pre-twentieth century levels of PS chinook production and escapement are unknown. The most dependable source of information, trap counts at the COE facility, start in 1941 with the construction of Mud Mountain Dam (MMD) at RM 29.5. All past and current estimates of population size are based on trap counts. Almost from the beginning, trap counts show a steady decline in abundance of White River chinook. Counts in the 1940s averaged 2,953, declining to less than 500 in the 1960s and returns of only six spawners in 1986. Recent returns have shown signs of improvement with average returns from 1990 to 1997 of 502 spawners and counts in 2000 and 2001 of 1,546 and 2,002 adults, respectively. Releases of captive broodstock program and hatchery-reared PS chinook (some unmarked) have likely contributed to returns in recent years so current population dynamics probably do not accurately reflect levels of natural production (PSTRT 2001).

The decline of the stock is attributed to the effects of intense human activities (Ladley *et al.* 1999). Harvest and habitat constraints, specifically flow regime, sedimentation, streambed instability, estuarine loss, reduced LWD volumes, and passage problems associated with dams affect White River chinook salmon, threatening the long-term viability of the population (Bishop and Morgan 1996).

In 1991, Nehlsen *et al.* identified the White River spring run as having a moderate risk of extinction and in 1999, NOAA Fisheries listed the White River spring-run as one of only five hatchery populations essential for the recovery of the Puget Sound ESU (64 FR 14308, March 24, 1999). The Puget Sound Technical Recovery Team (PSTRT) identified White River chinook as an independent stock based on genetic and life history information (NMFS 2001). These fish are genetically unique and comprise the last existing spring chinook salmon stock in South Puget Sound (WDFW *et al.* 1996). In the early 1970s, an artificial propagation program was established for White River spring chinook salmon because returns were critically low (WDFW *et al.* 1996). The artificial propagation program was initially started to restore the south

Puget Sound fishery, and by the late 1970s, NOAA Fisheries was working cooperatively with WDFW and the Muckleshoot and Puyallup Indian Tribes to recover the stock (WDFW *et al.* 1996).

The majority of White River chinook salmon spawning occurs in four major non-glacial tributaries in the upper watershed: Boise Creek (RM 23.9), Clearwater River (RM 35.3), Greenwater River (RM 45.8), and Huckleberry Creek (RM 53.1) (Ladley *et al.* 1999; Williams *et al.* 1975). Peak spawning in tributaries above the dam occurs about mid-September, roughly eight weeks after peak returns to the Buckley trap (Ladley *et al.* 1999).

For the mainstem White River, information on chinook salmon spawning is limited, largely by visibility. Surveys for adult chinook salmon below the PSE diversion have been conducted annually by the Puyallup Tribe Fisheries Department (PTFD) (unpub. data) since 1995. These surveys typically began at the diversion (RM 24.3) and terminated at the Eighth Street Bridge (RM 7.5). Annual redd counts for the years 1995 to 2001 have ranged from zero to 99, with an average of 36 redds for the seven years considered.

Adult chinook salmon typically spawn between ages three and five, entering the White River as early as March (Williams *et al.* 1975). Between 1942 to 1950, chinook salmon were typically encountered at the Buckley trap from May through August, with peak returns in June (WDFW *et al.* 1996; Ladley *et al.* 1999). Currently, chinook salmon exhibit a bimodal return to the Buckley trap. The peak number of chinook salmon returning to the Buckley trap, according to average weekly returns between 1986 and 2000, occurs first in July, and then again at the end of September (data is for total chinook catch at Buckley, which includes hatchery fish) (COE, Seattle District, *unpubl. data*). For the 10 year period considered, the second peak (September) was highest, but (1996 to 2000) returns have been highest during July (COE, Seattle District, *unpubl. data*).

After incubation, fry emerge from the gravel from late winter to early spring. Juvenile chinook salmon may then migrate downstream to rear in low-gradient channels (WDFW *et al.* 1996). The majority (80%) of chinook salmon in the White River rear for short periods (one to three months) in fresh water, outmigrating as subyearlings and the remainder (about 20%) outmigrate after rearing in fresh water for about one year (Dunston 1955). Scales collected from adult chinook salmon at the Buckley trap confirm age at outmigration (WDFW *et al.* 1996).

Short periods of freshwater rearing may represent an adaptive response by juvenile chinook salmon to the turbid waters of the White River. Characteristically high suspended sediment loads might affect timing and age of fish at outmigration by limiting rearing densities compared to what would be expected in a non-glacial river of comparable size (Ptolemy *in* Newcombe and Jensen 1996). In other basins, side channels fed by clear groundwater, and valley-wall runoff provide habitat and are extensively used by chinook salmon fry (Murray and Rosenau 1989; Chamberlin *et al.* 1991; Scrivener *et al.* 1994). Studies suggest that some low-gradient nonnatal clear-water tributaries are used by juvenile chinook salmon and that these habitat types provide juveniles an opportunity to maximize their growth and survival through increased feeding success (Murray and Rosenau 1989). Because Soaton Creek is spring fed, it might be particularly important to those fish that outmigrate as yearlings.

Estuary rearing is considered to be important for chinook, such as White River chinook, that outmigrate as subyearlings (Groot and Margolis 1991). Outmigrating smolts feed, grow, and develop their ability to osmoregulate in saltwater during this period. Studies in Commencement Bay found smolts more abundant from March through the end of June. Wild smolts from the White River which outmigrate as subyearlings are probably resident in the estuary from April to May (Kerwin 1999). Very little data are available on the oceanic phase of the White River chinook life cycle. White River chinook return to spawn at ages of two to five years with the majority of spawners three to four years old (WDFW 1996)

There is no direct evidence that juvenile White River spring or fall chinook utilize Soaton Creek in the project area for refugia or rearing. Jovita Creek, a tributary to Soaton Creek is high gradient and does not contain habitat elements to support chinook. However, the Puyallup Tribe has conducted surveys of the tributaries of the White River and has consistently found chinook presence in other small tributaries (Russ Ladley, Puyallup Tribe, Pers. Comm. 2002), and sections of Soaton Creek present the habitat elements exist that would support rearing individuals. Therefore, juvenile chinook use is suspected in Soaton Creek, but not its tributary, Jovita Creek.

2.2.3 Environmental Baseline

The environmental baseline represents the current set of basal conditions to which the effects of the proposed action are then added. Environmental baseline is defined as "the past and present impacts of all Federal, State, and private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or informal ESA section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process" (50 CFR 402.02).

The proposed project is located in the White River subbasin located in Pierce County, Washington. The White River originates from the slopes of Mt. Rainier and drains an area of approximately 494 square miles (Williams *et al.* 1975). The White River flows approximately 68 miles from its origin to the confluence with the Puyallup River. The action area includes Soaton Creek (RM 0.0 to 2.2) and the lower mainstem of the White River between RM 0.7 and RM 4.0.

Much of the action area has been identified and mapped by the Federal Emergency Management Agency (FEMA) as 100-year floodplain. In addition to the action area being identified as floodplain, the action area also includes an aquifer recharge area that has been mapped by Pierce County. Floodplains and aquifer recharge areas provide water storage and often supply the summer/fall baseflow for streams and rivers.

Approximately 1,562 acres of land can be served by the proposed interchange, and approximately 640 acres of this land is within the FEMA designated 100-year floodplain. There is an estimated 1000 acres of industrial zoned land that the interchange would service. An estimated 572 acres of developed industrial land occurs within the action area. Approximately 303 acres has been filled or being filled to accommodate new development. The remaining acreage, approximately 771 acres is either under-developed or currently vacant with no immediate plans for development. (Ryan Windish, City of Sumner, Pers.Comm. 2003). The continued development in the action area and White River basin might further alter hydrology in the White River floodplain.

Existing conditions in the action area were evaluated using the ecological pathways, and indicators in the Matrix of Pathways and Indicators (MPI) described in the National Marine Fisheries Service 1996. Depending on the environmental conditions present in the action area, each indicator of habitat functional condition is described as *properly functioning*, *at risk*, or *not properly functioning*.

In general, habitat elements (channel condition, riparian areas, habitat complexity and diversity, etc.) in the project vicinity are *not properly functioning*. An extensive area of the Soaton/Jovita Creek and White River channels is diked or channelized and lack natural habitat complexity/diversity. Adjacent riparian vegetation on Soaton Creek is mostly made up of invasive reed canary grass and Himalayan blackberry or is completely absent, thus recruiting sources of large wood are absent. Jovita Creek, a tributary to Soaton Creek appears to be the least degraded. The channel is less confined (pools and riffles are present) and it has some semblance of a native riparian zone (red alder, pacific willow, black cottonwood). However, because of its steep gradient and small size, Jovita Creek is unlikely to be used by any life stage of chinook. Below Jovita Creek, Soaton Creek is likely unsuitable for spawning chinook because of its small size, poor water quality and lack of suitable substrate. The White River in the action area has been modified through various flood control structures. Based on the MPI analysis, temperature is the only *properly functioning* habitat element in Soaton Creek and the White River within the action area.

2.2.4 Factors Affecting Species Environment within Action Area

The decline of the stock is attributed to the additive, cumulative, and synergistic effects of intense human activities (Ladley *et al.* 1999). Harvest and habitat constraints, specifically flow regime, sedimentation, streambed instability, estuarine loss, reduced LWD volumes, and passage problems associated with dams affect White River chinook salmon, threatening the long-term viability of the population (Bishop and Morgan 1996).

Jovita/Soaton Creek

Soaton Creek, including Jovita Creek upstream of West Valley Highway, has been altered and maintained as a drainage ditch since the mid-eighties. The stream channel, while restricted by roads, has some ability to meander within the valley bottom. There are no major barriers to passage in Soaton Creek, however there is a passage barrier on Jovita Creek at Jovita Creek Road, which is above the project area, and one of the two culverts proposed to be extended is a possible barrier to salmonids at high flow (Marc Marcantonio, Pierce County Conservation District, Pers. Comm. 2002). At Jovita Creek in-stream temperatures were fairly low (46.0 and 45.8 ˚F, respectively) and the water was slightly basic (pH of 7.6 and 7.8, respectively). The water at both sites had very low turbidity, but was polluted with tires, cans, and other discarded materials. There appears to be limited spawning habitat at these sites, however, the area provides rearing habitat (small pools, riparian cover), as evidenced by the presence of juvenile salmonids (unknown spp.).

Above the confluence with Jovita Creek, Soaton Creek is rust colored, very turbid and appears stagnant (slow moving with oil sheen present). The waters of the two creeks contrast one another in general appearance and particularly turbidity where they meet. At Soaton Creek in-stream

temperatures were also low (45.7 ˚F at both sites) and the water was slightly acidic (pH of 6.5 and 6.8, respectively). The quality of surface water in the action area is fed by upland springs and seeps.

Downstream of Jovita Creek, the water remains turbid and the stream channel is essentially a ditch (8.2 feet wide by 2.9 feet deep) overgrown with reed canary grass. No fish were observed in Soaton Creek, but it appears that low quality rearing habitat is available below the Jovita Creek confluence until Soaton meets up with the White River. There is also some potential spawning habitat for coho or cutthroat, just below the Jovita confluence.

White River

Land use in the lower White River basin is a mix of flood control reservoir, forestry, agricultural, hobby farms, rural residential, suburban, urban, hydroelectric, and industrial. Land ownership is mostly private.

Downstream of MMD (RM 29.5) the character of land use changes. Numerous farms and the towns of Enumclaw and Buckley are located in this reach. Both towns discharge effluents from their sewage treatment plants into this section of the river. Additional non-point source pollution enters from agricultural activities, including numerous dairies, along this reach. The White River downstream of MMD exceeds Washington State Department of Ecology (WDOE) standards for fecal coliform pollution and pH. The high pH (greater than 9.0) that is sometimes observed in the bypassed reach is believed to be from low flow and photo synthetic activity of the high levels of algae fostered by nutrient input from the previously mentioned point and non-point sources.

Flow reduction resulting from the MMD and the Lake Tapps diversion (RM 24.3) within the bypass reach (RM 24.3 to RM 3.6) adversely affect fish habitat by dewatering otherwise useable area, disconnecting side channel and off channel habitat, and limiting habitat maintaining and forming processes, including sediment and woody debris transport. Upstream and downstream migration is inhibited by reduced flows. Total suitable spawning habitat is reduced, particularly spawning habitat far from the edge of the channel thalweg (the deepest line of highest water velocity). This habitat type is critically important in a system with highly variable flows like the White River since redd scouring and egg mortality during high flow events is less likely in redds well-removed from the thalweg.

The lower White River has been subject to flood control modifications including diking and gravel removal to deepen the channel. In efforts to limit the extent of flooding, levees have been created along the river. The levees prevent floodplain connectivity from properly functioning at this time. Flood control has led to extensive development of the lower river floodplain from Auburn downstream. Because of flood control efforts, habitat elements such as pool frequency, refugia, and off channel habitat are not properly functioning in the action area. Levees and dikes have reduced channel complexity, the recruitment of LWD, and thus the potential for juvenile refugia and rearing.

2.3 Analysis of Effects

In this analysis, the changes resulting from the proposed action are expressed in terms of whether it is likely to *restore*, *maintain*, or *degrade* an indicator of functional chinook salmon habitat. By examining the effects of the proposed action on the habitat portion of a species biological requirements, NOAA Fisheries can gauge how the action will affect the population variables that constitute the rest of a species' biological requirements and, finally the effect of the action on the species (NMFS 1999).

In this analysis, the probable direct and indirect effects of the action on the chinook salmon are identified. The ESA implementing regulations direct NOAA Fisheries to do so "together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02)."

Direct effects to Soaton Creek include potential short-term sedimentation and temporary loss of riparian vegetation during construction of the new and extended culverts, placement of in-stream habitat structures, and construction of the adjacent wetlands. Long-term effects of the project will be the conversion of approximately 240 linear feet (plus 150 linear feet between the two new culverts) of natural stream channel and riparian vegetation. Other direct effects might include injury or death of chinook from the exclusion and handling of fish prior to dewatering of the creek, as a minimization measure, prior to construction. It is surmised that juvenile PS spring chinook will be present during construction.

In addition, the proposed new interchange is likely indirectly related to the development of some floodplain in the action area, especially in the Soaton Creek subbasin and the White River basin. Industrial development in a floodplain will lead to additional impervious surface in the action area, which might alter the hydrology in the action area, and prevent restoration activities in the floodplain and associated aquatic habitat. Because the valley currently experiences high ground water tables throughout the year resulting from upland sources, the addition of new impervious in the valley bottom would probably not alter the hydrology to affect PS chinook.

The following is a brief description of the effects anticipated from the proposed construction activities.

2.3.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated.

The proposed project has the potential to directly impact listed species or their habitat as a result of the project. The in-water work that is being proposed includes: (1) The extension of two existing parallel 12-foot pipe arch culverts over Soaton Creek that cross under SR 167 at the north end of the project, (2) Two new 24-foot bottomless steel arch culverts over Soaton Creek for the southbound on and off ramps near 24th Street, (3) placing habitat rock and LWD in an approximately 2,269 linear feet section of Soaton Creek, and (4) removal of two existing 12-foot arch culverts, 170 feet in length, removal of approximately 3,021 cubic yards of fill material, and

replanting of the site. These activities will modify riparian vegetation, increase sedimentation and deposited sediment, and require handling of fish (if any are found prior to construction).

Water Quality

The project includes construction activities (installation of new culverts, extension of culverts, installation of habitat structures) below the ordinary high water mark (OHWM) of Soaton Creek. The project includes various temporary and permanent erosion control structures. The expected negative effects might include temporary increases in turbidity and sediment levels during construction, associated with grading and excavation to extend the existing culverts, install the two new culverts, and the placement of instream habitat structures.

The turbidity standards for water quality might be exceeded for short periods of time during construction. Elevated turbidity levels can reduce the ability of salmonids to detect prey and can cause gill damage (Sigler 1980; Lloyd *et al.* 1987). Potential short-term negative effects include deposition of fine sediment that can temporarily degrade instream spawning habitat, and loss of intergravel cover for fish from increased sediment levels (Spence *et al.* 1996). Additionally, short-term pulses of suspended sediment have been shown to influence territorial, gill-flaring, and feeding behavior of salmon under laboratory conditions (Berg and Northcote 1985).

These potential negative affects will be minimized through recommended restrictions in timing of construction and the use of erosion control measures identified in the BA and other documents. Overall, the increased turbidity and potential fine sediment deposition are not expected to seriously affect PS chinook during construction, nor likely be present for more than one year after construction ends.

Riparian Vegetation

The project will require approximately 24 acres of clearing and grubbing, approximately four acres of which will occur within 300 feet of Soaton creek. The majority of the vegetation to be cleared and grubbed within 300 feet of the creek is exotic vegetation comprised of reed canary grass, nettle, and blackberry. However, a small portion of the removal will be native willow-dominated areas (in the vicinity of the southbound on and off ramps), including approximately 10 black cottonwoods to be removed for construction of the new bridge over the creek at 24th Street. An additional four acres adjacent to the creek will have existing exotic vegetation (reed canary grass and blackberries) removed and rehabilitated by replanting with native vegetation and placement of habitat structures in the channel.

Riparian vegetation generally links terrestrial and aquatic ecosystems, influences channel processes, contributes organic debris to streams, stabilizes streambanks, and modifies water temperatures (Gregory *et al.* 1991). On small streams, the removal of vegetation might result in increased water temperatures. Loss of vegetation might also reduce allochthonous inputs to the stream. Woody debris recruited from associated riparian provides essential functions in streams including the formation of habitats. Additionally, the removal of streambank vegetation can generally decrease streambank stability and resistance to erosion. Accordingly, riparian areas are essential in the function of creating habitat structures necessary for every life stage of chinook, especially juvenile rearing.

The permanent removal of approximately 240 linear feet of riparian will reduce shade, allochthonous inputs, and LWD recruitment, which are necessary components for proper function of habitat elements within a stream. However, the project also includes restoring approximately 170 linear feet of stream channel that is currently contained in two culverts, and the replanting and addition of in-stream habitat components over approximately 2,269 linear feet section of riparian along Soaton Creek will improve the habitat in the project area in the long-term.

The overall result of the minimization measures will improve the condition of Soaton Creek. The net amount of approximately 2,029 feet of rehabilitated stream riparian corridor, over the long-term, will be an improvement in the ecological function of Soaton Creek. The placement of habitat structures and a future mature riparian corridor will provide LWD now and over the long-term.

Channel Condition

As mentioned above, constructing the interchange includes extending two existing culverts by 20 feet each, installing two new culverts (88 feet and 111 feet), and placement of instream habitat structures. The extension and addition of culverts will also slightly reduce the amount of open channel available for PS spring chinook. To minimize the loss of streambed and riparian habitat, the project includes the rehabilitation of approximately 2,269 feet of channel with the addition of in-stream habitat structures.

These activities will permanently alter approximately 240 feet of natural streambed substrate in Soaton Creek. Additionally, the use of heavy equipment in the riparian areas might cause local compaction of soils resulting in slightly reduced infiltration at the project site. Such compacting could decrease the stability of the banks and reduce growth of riparian vegetation, and perhaps lead to increased deposition of fine sediments.

The alteration of natural streambed substrate in Soaton Creek will slightly reduce the habitat available for prey species that juvenile salmonids feed upon, and cover to avoid predators. Overall, the loss of riparian area and the addition of fixed structures over the stream will temporarily reduce the extent of rearing habitat that may be currently used by PS spring chinook.

The overall result of the minimization measures will improve the condition of Soaton Creek. The net amount of approximately 2,029 feet of rehabilitated stream riparian corridor, over the long- term, will be an improvement in the ecological function of Soaton Creek. The placement of habitat structures and a future mature riparian corridor will provide LWD now and over the long-term.

Fish Handling

The project includes worksite isolation techniques that are included to reduce the likelihood and extent of exposure of listed species to in-water construction activities. Worksite isolation (dewatering of the project area) is desirable in certain circumstances because it can reduce construction effects on fish present in the project area during construction. Most elements of worksite isolation can harm fish, including techniques to locate (electroshocking) and handle fish before dewatering the worksite.

To construct the culvert extensions and new culverts, water must be detoured through bypass pipes. To reduce the number of fish that might be harmed by dewatering, fish located in the bypass reaches will need to be captured and relocated outside the work areas (Appendix L of the BA, provision 15). It is not anticipated that electroshocking will be required due to the substrate of Soaton Creek. The substrate consists of small grain material, and thus not suitable for fish to hide. Because the relocation of fish requires handling them, there is the potential for injury or death, however, not handling them would be more harmful. To minimize harm to fish, a site specific fish relocation plan will be developed for this project that is similar to the fish exclusion protocols prepared for the Regional Road Maintenance ESA Program (Appendix M of the BA). If electroshocking is necessary, then the COE will ensure that NOAA Fisheries guidance on electroshocking is followed (NMFS 1998).

2.3.2 Indirect Effects

The action area includes the floodplain for the White River and its tributaries near the site of the proposed interchange. Indirect effects are those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur (50 CFR 402.02). Indirect effects might occur outside of the area directly affected by the action. Indirect effects might include other actions that have not undergone section 7 consultation, but will result from the action under consideration. These actions must be reasonably certain to occur, or they are a logical extension of the proposed action.

Commercial development has been ongoing in the action area for sometime, relying to some extent on plans for the eventual SR 167 Interchange that is now the subject of this consultation. While the existing commercial use in the area could continue to support new and existing commercial use in the area, the new interchange will decrease pressure on existing service and improve conditions for new commercial development (Letter, City of Sumner, August 30, 1999). Therefore, the potential effects of development are considered here as indirect of the proposed action.

The fact of commercial development in the action area is forgone. The area has experienced, and will continue to experience, significant industrial development regardless of whether the interchange is constructed. The construction of the interchange is not intended to further facilitate construction of industrial facilities. Access to the area is already available from SR 410 to the south and from the Eighth Street interchange on SR 167 (Letter, City of Sumner, August 30, 1999). However, the proposed interchange will better serve existing and future cross-town truck traffic through the city center from SR 410. As such, the interchange could possibly influence the timing and pattern of future commercial development in the action area. The manner in which the interchange could influence the timing and pattern of new construction in the action area is purely speculative at this time.

After initiating formal consultation with the COE on this proposed action, the USFWS, in coordination with NOAA Fisheries and the COE, contacted the City of Sumner regarding future development in the floodplain portion of the action area. The USFWS expressed concern about the effects of these activities on bull trout, a threatened species, and requested the City explore the opportunity to address these effects in the context of this consultation. With the combined support of the USFWS, the COE, and NOAA Fisheries, the City of Sumner joined WSDOT as a

co-applicant for the proposed permit. As a co-applicant, the City of Sumner agreed to implement Terms and Conditions stated in each of the Services' Biological Opinions by their inclusion in the COE's proposed permit. By doing so the City of Sumner will be minimizing, if not avoiding, any take that could result from the indirect effects of the proposed action.

NOAA Fisheries analyzed the existing and projected development, as it related to new impervious surface, in the action area, which includes approximately 771 acres that have not been filled or permitted in the City of Sumner's industrial zoned area. This analysis concluded that new impervious surface in the action area would not measurably affect the hydrology of the White River. A preliminary estimate by USFWS staff is that the White River could experience approximately a 2.4 cfs increase in flow (estimated at less than 1.0%) during the peak flow period at full build-out of the floodplain in the action area. This projected change is not measurable.

Lake Tapps is the preliminary source of ground water recharge in the area of Soaton Creek and the White River (Pacific Groundwater Group 1999). There are insufficient data to estimate any significant alteration in hydrology to Soaton Creek. However, based on the fact that this reach of the White River is gaining surface water quantity from sub-surface flow or recharge through the hyporheic zone from the aquifer (Pacific Groundwater Group 1999), and the tributaries, such as Soaton Creek, are spring fed in this area, it is unlikely that there would be significant high peak and low flow problems in the action area due to new impervious surface in the valley bottom action area.

Impervious Surface and Stormwater Facilities

New construction in the action area is likely to increase the area of impervious surface (roads, sidewalks, building roofs). Adding impervious surface in a watershed is associable with several environmental effects that can adversely affect many aquatic species, including chinook salmon. The extent to which chinook detect adverse effects associated with impervious surfaces depends on several factors. Impervious surfaces do not directly affect chinook but may indirectly affect them by decreasing stormwater infiltration and increasing direct stormwater discharge into waterways that provide salmonid habitat (*i.e.*, changed hydrology). By increasing the conveyance of stormwater into salmonid habitat, fish can be exposed to degraded water quality, increased peakflows, and decreased baseflows. When these changes happen at certain scales within a watershed, they can in turn, adversely affect the quality and quantity of essential habitat elements. For example, increased peakflows can lead to scour and elimination of gravels used to form spawning redds. Decreased baseflows can lead to stranding and dessication of pre-emergent smolts as stream margins recede from the stream bank. Furthermore, as more native vegetation is removed and natural landscape is converted to impervious surface, changes in water quality and hydrology become more apparent on habitat. Stormwater treatment facilities and other techniques can ameliorate those changes in water quality and quantity if they are designed properly. In addition to proper design, all stormwater BMPs and facilities must be regularly maintained to assure proper operation to avoid and minimize impacts to fish-bearing streams.

The proposed project will minimize changes in hydrology caused by the facilities built under the proposed action. These measures include providing for both stormwater quality treatment and infiltration following quality treatment. To minimize short-term impacts, such as sedimentation, from the disturbance of the riparian area and the channel, the contractor will work within the

approved work window and within the flagged work area. These measures include creating stormwater treatment facilities designed to detain stormwater generated from the road improvement project. Stormwater best management practices will address quality and quantity treatment for 10.8 acres (97%) of the new impervious surface and 2.5 acres (53%) of existing impervious surface. Stormwater detention will minimize disruption of the hydrology of the system, and remove pollutants and fine sediments from surface water. Detention basins will provide some infiltration where precipitation will percolate stormwater to groundwater. Infiltration will preserve the hydrology better than detention alone. There remains a potential for stormwater routed and conveyed to Soaton Creek to impact the channel through increased flows that might cause bank erosion, bed scour, and loss of groundwater recharge. On balance, the expected adverse effects of added impervious surface and stormwater treatment to fish habitat in the action area will be minimized through the use of permanent stormwater BMP and the rehabilitation of stream and riparian corridor.

Sediment Transport and Channel Morphology

The addition of two new culverts and the extension of two existing culverts will reduce the amount of potential rearing area available for PS chinook. The addition of fixed structures along the stream will reduce the likelihood that the stream can meander, thus minimizing potential habitat complexity for the rearing of PS chinook. To minimize the disturbance of the riparian area and the channel, the contractor will work within the approved fish window and within the flagged work area. The addition of approximately 2,269 linear feet of rehabilitated stream channel and riparian area is expected to provide shade, cover, and LWD for stream complexity that is needed for juvenile chinook rearing.

2.4 Cumulative Effects

Cumulative effects are defined as "those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 CFR 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they might require separate consultation pursuant to section 7 of the ESA.

This cumulative effects section addresses the purpose of the project which is to provide access to current and future industrial growth in the City of Sumner. A cumulative effects analysis was prepared for this project by David Evans and Associates, Inc. (Appendix P of the BA). The following is a summary of the assessment:

The City of Sumner has approximately 8,500 residents. Sumner has grown by 35% between 1990 and 2000. The City of Sumner is ranked as the 117th most populous city in the State of Washington based on year 2001 state estimates. Sumner is populated at an average density of 2,283 people per square mile, ranking 73 in population density out of 266 municipalities. Sumner is expected to grow at a rate of 3.5% per year, with an expected population of about 17,430 by the year 2017 (City of Sumner 2001).

Increases in population can generally be expected to lead to increases in impervious surfaces through residential, commercial, and industrial development. Impervious surfaces can increase

water quality degradation through non-point source (NPS) pollution, and adversely affect hydrology through reduced infiltration and increased stormwater conveyance. Research in the Puget Sound has shown a strong correlation between amount of stream basin imperviousness and degradation of stream quality. Most physical, chemical and biological characteristics of stream quality were found to degrade with increasing impervious surfaces (May 1996). In addition to the amount of impervious surface, the number of stream crossings, and the state of the riparian area in a subbasin can adversely affect the productivity of the stream.

Expected impacts to listed PS chinook from future development in the action area include: potential degradation of water quality and hydrology from the increase of impervious surface, loss of functional riparian habitat, loss of productive stream channel by adding new stream crossings, and increased sedimentation during construction.

The City of Sumner has the following land management regulations to minimize the effects of land development.

Erosion Control

Control of erosion and sedimentation of waterways is addressed in Chapter 16.05 of the Sumner Municipal Code (SMC). A temporary erosion and sediment control (TESC) permit is required for any development activity where at least 50 cubic yards of earth is moved or more than one acre of land is cleared. In addition to approving TESC plans and inspecting the work for containment fences, silt ponds or traps, rock entrances and final vegetation of slopes and cleared ground, the City visits each permitted site in late summer and works with the developer and/or contractor in preparing the site for the coming wet winter weather.

Stormwater Management Program

The City has enacted a stormwater management program. These regulations are codified in chapter 13.36 and 13.48 of the SMC. The King County Stormwater manual was adopted by the City with some additions as outlined in the Appendix to SMC 13.48. All runoff from new parking lots, driveways, and streets are treated for quality and quantity. All new developments with more than 5,000 square feet of impervious surface are required to provide detention for the 25-year developed storm at the 2-year pre-developed discharge rate. The City is in the process of revising their stormwater standards and are considering adopting the standards from the Stormwater Management Manual for Western Washington (Ecology 2001).

Stream Protection

Under SMC 16.56, all proposed development within 1,000 feet of salmon bearing streams is required to submit a habitat assessment prepared by a professional biologist. In addition, the City's shoreline master program prohibits most development within 200 feet of affected waterways (including the White River), and SMC 16.56 also requires buffers of native vegetation of at least 100 feet on Type 3 streams such as Soaton Creek (Table 1).

The State of Washington has adopted a new Shoreline Master Plan (SMP) for local governments to follow as they update their own shoreline development plans. The new shoreline rules

emphasize maintaining ecological functions along the shoreline and require each jurisdiction to analyze cumulative effects to these functions. The implementation of new shoreline plans should improve shoreline conditions for aquatic resources over time.

The City of Sumner has updated their SMP and is in the process of submitting the plan to the Washington State Department of Ecology. NOAA Fisheries believes that the revised plan is sufficient to provide protection to the White River and Soaton Creek.

Wetland Protection

Sumner code regulates development activities in the vicinity of critical areas such as wetlands. Development is regulated within 25 to 150 feet of jurisdictional wetlands depending on wetland classification (Table 1). Mitigation is required for unavoidable impacts to these regulated features.

Table 1: Sumner Sensitive Areas Buffers

Critical Area	Classification	Buffer Width (feet)
Wetland	I	150
Wetland	II	100
Wetland	III	50
Wetland	IV	25
Stream	1	Conservancy 200 Suburban 100 Urban 50
Stream	2	N/A
Stream	3	100
Stream	4	50
Stream	5	25

Habitat Protection

The Sumner critical areas ordinance provides measures for the protection of critical fish, wildlife, and plant habitat areas. These areas include those that support Federal or state listed endangered, threatened, or sensitive species.

Although development impacts are often allowed if unavoidable, the implementation of impact minimization measures is required. Preparation of a habitat management plan may be required for activities that occur within 100 feet of a habitat area, or within 1,000 feet of a wildlife point location.

Floodplain Protection

A majority of the action area has been mapped by the Federal Emergency Management Agency (FEMA) as floodplain. Approximately 640 acres of this land lies within the designated 100-year floodplain. Pierce County mapped the action area as an aquifer recharge area. Aquifer recharge areas supply the baseflow for streams and rivers. There is an estimated 1,562 aces in the action area, a 1000 acres of that is industrial zoned land that the interchange would service. An

estimated 572 acres of developed industrial land occurs within the action area. Approximately 303 acres has been filled or being filled to accommodate new development. The remaining 771 acres of land is either under-developed or currently vacant with no immediate plans for development (Ryan Windish, City of Sumner, Pers. Comm. 2003).

The addition of approximately 771 acres of impervious surface within the action area will have incremental effects on salmonid habitat conditions as development continues toward build-out. This projected new impervious surface will comprise 50% of the action area and approximately 14 % of the Soaton/Jovita Creek basin. Impacts to water quality could be substantial for Soaton Creek upon full buildout, but less significant when considered in the context of the entire watershed. Existing stormwater and sensitive area regulations by the City of Sumner will reduce the severity of these impacts. However, the anticipated increase in development might eventually further degrade salmonid habitat conditions in the action area.

2.5 Conclusion

The proposed action is not likely to jeopardize the continued existence of PS chinook. The determination of no jeopardy was based on the following:

- There will be short-term direct impacts associated with the proposed activities. The direct and indirect effects will be minimized through the use of BMPs in the design and construction. The majority of project effects fall in the tributaries within the action area that provide little or no utility to PS chinook. These areas would be unlikely to support much chinook use even if properly functioning. Therefore, the proposed activities are not expected to appreciably reduce the likelihood of survival and recovery of PS chinook.

- The installation of stormwater facilities will minimize the potential adverse effects of increased stormwater runoff caused by new impervious surface in the Soaton Creek subbasin and White River basin.

- The cutting of approximately 0.21 acres of riparian forest eliminates a small percentage of the potential recruitment for LWD in the stream until replanting matures. The overall project minimization actions, utilization of the removed trees at the project site, and replanting of native vegetation in project areas, will slightly restore the juvenile rearing edge habitat and minimize, if not obviate lost LWD recruitment.

- Timing restrictions and a fish removal protocol are expected to minimize potential "take" of fish and adverse effects on habitat by significantly reducing, if not avoiding exposure to transient construction effects.

- The COE will minimize for unavoidable impacts to riparian forest loss through the replanting of a 2,269 linear feet section of Soaton Creek, and the creation/rehabilitation of 2.8 acres of adjacent wetland and wetland buffer. Revegetation includes approximately 170 feet of Soaton Creek that will be daylighted by removing two culverts at 32nd Street.

- Because the sources of water to Soaton Creek and the White River are largely outside the

action area, future development in the White River floodplain will not measurably alter Soaton Creek or the White River through the addition of new impervious surface due to the hydrology of the action area.

2.6 Reinitiation of Consultation

Consultation must be reinitiated if the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded, new information reveals effects of the action may affect listed species in a way not previously considered, the action is modified in a way that causes an effect on listed species that was not previously considered, or, a new species is listed or habitat is designated that may be affected by the action (50 CFR 402.16).

2.7 Incidental Take Statement

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined as significant habitat modification or degradation that actually kills or injures to listed species by "significantly impairing behavioral patterns such as breeding, spawning, rearing, migrating, feeding, and sheltering" (50 CFR 222.102). Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such takings is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the effects of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize take and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures. The Terms and Conditions included below restate, in part, elements of the proposed action that are intended to minimize or avoid effects on listed fish. Some of these measures taken into the assessment of the incidental take statement are below. There are restated in the Terms and Conditions to ensure the action agency understands they are mandatory.

2.7.1 Amount or Extent of Take Anticipated

Puget Sound spring chinook salmon are presumably using the action area during part of the year, such that they are likely to encounter project effects. Project effects includes some habitat modification that includes dewatering of Soaton Creek to an extent that causes harm. Therefore, the proposed action is reasonably certain to result in incidental take of chinook salmon. For habitat affecting activities, NOAA Fisheries cannot estimate a specific amount of incidental take of individual PS chinook, despite the use of the best scientific and commercial information available. As a surrogate for estimating the number of fish harmed by the proposed action,

NOAA Fisheries has estimated the extent of habitat and the number of listed species that may be affected by those activities. Additionally, the low likelihood of having to remove fish from the work site as dewatering occurs renders difficult, if not impossible, the task of estimating the numerical amount of take from fish handling. Therefore, the estimated extent of habitat affected by construction activities (e.g., length of stream dewatered, and spatial extent of riparian vegetation removed) and the number of juvenile chinook are both the limits of harm authorized in this incidental take statement and the thresholds for reinitiating consultation.

Soaton Creek will be dewatered at separate stretches of the stream to install a 88-foot and 111-foot culverts and two 20-foot extensions to existing culverts. Dewatering will minimize exposing salmonids to certain in-stream construction activities. However, it will also temporarily prevent any potential usage by salmonids of those stretches of Soaton Creek. The extent of take authorized for worksite isolation is that which could result from short-term loss of use of approximately 450 feet of Soaton Creek.

Stream dewatering might create the need to directly handle and move fish until they can be replaced instream below the worksite. The extent of take authorized for fish handling is limited to less than 10 juvenile chinook salmon in all the stream dewatering activities.

Take resulting from the fill of class two and three wetlands will not exceed 1.0 acres. Take resulting from riparian conversion for the construction of new culverts and bridges will not exceed 450 linear feet of Soaton Creek.

Incidental take is authorized in this incidental take statement for future construction in the White River valley portion (approximately 771 acres) of the action area that might harm listed salmonids.

2.7.2 Reasonable and Prudent Measures

The NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of PS chinook:

1. The COE shall minimize take caused by water quality degradation.

2. The COE shall minimize take during worksite isolation and fish handling.

3. The COE shall minimize take during in-water construction.

4. The COE shall minimize take from vegetation removal.

5. The COE shall minimize take from altered hydrologic and channel conditions (from new crossings).

6. The COE shall minimize take from the City's permitting of new construction in the valley

bottom portion of the action area through specific permit provisions written for the City of Sumner.

2.7.3 Terms and Conditions

To comply with ESA section 7 and be exempt from the prohibitions of ESA section 9, the COE must comply with the terms and conditions that implement the reasonable and prudent measures. The terms and conditions are non-discretionary.

1. To implement RPM No. 1 above, the COE shall ensure that BMP erosion and sediment controls are implemented and that conservation measures proposed by the applicant shall be fully implemented at the appropriate phase of construction. Those conservation measures are more fully described in the BA and associated correspondence, and are incorporated here by reference, as a Term and Condition of this Incidental Take Statement.

2. To implement RPM No. 2 above, the COE shall implement the following measures to minimize take associated with capturing and handling of fish. The following measures are incorporated here by reference, as a Term and Condition of this Incidental Take Statement.

    a. Chinook listed under ESA shall be handled with extreme care and kept in the water to the maximum extent possible during handling and processing procedures. Circulation and replenishment of water in holding units is required and shaded containers and supplemental oxygen should be available on site.

    b. All juvenile chinook fish captured during water diversion shall be returned to the stream (outside the block-net area). Young-of-the-year salmonids shall be held in separate buckets to avoid predation by other fish (e.g. bucket predation).

    c. Surveyors shall observe the condition of handling fish. Seining will be the primary method used to remove fish, followed by electroshocking. If electroshocking is necessary, the COE will follow NOAA Fisheries guidelines incorporated here by reference, as a Term and Condition of this Incidental Take Statement. If fish appear stressed or injured (dark bands, gulping air, excessive mucus, irregular swimming, or bucket predation), immediately halt handling and decrease the frequency and voltage.

3. To implement RPM No. 3 above, the COE shall ensure that in-water construction will be limited to between June 15 and September 15. Those provisions are incorporated here by reference, as a Term and Condition of this Incidental Take Statement.

4. To implement RPM No. 4 above, the COE shall ensure that the applicant implements the monitoring measures for riparian revegetation described in this document and the BA and

other documents. The monitoring measures described in those provisions are incorporated here by reference, as a Term and Condition of this Incidental Take Statement. The COE shall be responsible for mechanical maintenance and monitoring of the rehabilitated area.

5. To implement RPM No. 5 above, the COE shall ensure the installation of stormwater facilities outlined in the BA and other documents are fully implemented. Furthermore, stormwater facilities shall undergo regular and extensive maintenance measures to ensure its effectiveness in preserving water quality and quantity. Those provisions as summarized in this Opinion are incorporated here by reference as a Term and Condition (T&C) of this Incidental Take Statement. The COE shall be responsible for maintenance and monitoring of the detention basins.

6. To implement RPM No. 6 above, the COE shall ensure that the permit issued to the City of Sumner contains the following Terms and Conditions:

6.1 For the City of Sumner: Within the action area, establish and maintain in perpetuity a 100-foot buffer along both banks of Soaton Creek. This T&C will be implemented through the SMC Critical Area Ordinance (CAO) (Title 16). In addition:

a. Variances from the buffer requirement on Soaton Creek will be allowed only for parcels with less than 200 feet of depth as measured perpendicularly from the ordinary highwater mark. Provided that:

i. The 100-foot buffer cannot be reduced more than 25 feet, resulting in a 75- foot buffer.
ii. The development of the 25-foot reduction in setback shall not exceed 10% impervious surface.
iii. If either i. and/or ii. cannot be achieved the City will notify the Service.
iv. If either i. and/or ii. cannot be achieved measures to offset impacts must include:

1. Removal of the equivalent amount of existing impervious surface within the sub-basin of Soaton Creek, and
2. Permanent set aside and habitat restoration of area(s) where impervious surface has been removed.

b. Existing development and vested parcels along Soaton Creek will be not be subject to this T&C but will maintain, at a minimum, the buffers currently in place. As these properties require additional City permits, the City will incorporate to the fullest extent possible the terms and conditions related to Soaton Creek.

c. For the development of parcels subject to this T&C and where possible on vested or already developed properties, stormwater treatment facilities will be located outside the 100-foot buffer.

d. For the development of parcels subject to this T&C and where possible on vested or already developed properties, the City shall require that the buffer be established by a permanent protective easement, public or private land trust dedication, or similar protective mechanism that would provide City access to the buffer for the placement of further conservation measures.

e. The City will develop a Master Habitat Management Plan (HMP) for the 100-foot buffer on Soaton Creek that will be implemented in conjunction with or sooner by the developer of the parcels subject to this T&C and where possible on vested or already developed properties; or,

f. Any non-exempt development as defined in SMC CAO 16.40.100 and subject to this Opinion will develop and implement individual HMPs for the buffers on Soaton Creek.

g. Habitat Management Plans will contain explicit restoration plans. These plans should include at a minimum: planting and soil specifications, requirement to use only native plant material, 10-year monitoring and maintenance plans, invasive species controls, success standards, and contingency plans. The implementation, monitoring and maintenance of these plans will result, in the long-term and in perpetuity, in riparian restoration of the buffers on Soaton Creek.

6.2 For the City of Sumner: Within the action area, establish and maintain in perpetuity a 200-foot buffer along the White River. This T&C will be implemented through the City's Shoreline Master Program (as proposed in the draft dated November 8, 2002). In addition:

a. Exceptions to the 200-foot buffer are residential setbacks for the following properties with the ID # X24-X30 and 98, 93 103, 106, 108, 113, and 112. For these properties the City will adopt and implement the setback standards outlined in the Ch. 4, pages 4-4 (b) and 4-5 (c) of the SMP.

b. Existing development and vested parcels (in Appendix B) along the White River will be not be subject to this T&C but will maintain, at a minimum, the current buffers in place. As these properties require additional City permits, the City will incorporate to the fullest extent possible the terms and conditions related to the White River.

c. For the development of parcels subject to this T&C, and where possible on vested or already developed properties stormwater treatment facilities will be located outside the 200-foot buffer.

d. For the development of parcels subject to this T&C and where possible on vested or already developed properties, the City shall require that the buffer be established by a permanent protective easement, public or private land trust dedication, or similar protective mechanism that would provide City access to the buffer for the placement of further conservation measures.

e. The City will develop a Master HMP for the 200-foot buffer on the White River that will be implemented in conjunction with or sooner by the developer of the parcels subject to this T&C and where possible on vested or already developed properties; or

f. The City will require developers of parcels subject to this T&C to develop and implement in conjunction or sooner individual HMPs for the buffers on the White River.

g. Habitat Management Plans will contain explicit restoration plans. These plans should include at a minimum: planting and soil specifications, requirement to use only native plant material, 10-year monitoring and maintenance plans, invasive species controls, success standards, and contingency plans. The implementation, monitoring and maintenance of these plans will result, in the long-term and in perpetuity, in riparian restoration of the buffers on the White River.

6.3 For the City of Sumner: The City's proposed trail, per public access requirements of the SMP, will incorporate into it the following features and/or measures:

a. The trail will be placed on only one side of the White River.

b. The trail will be no larger than 16 feet wide, including two-foot gravel shoulders, and be placed on the furthest landward edge of the buffer.

c. If and where placement of the trail on the furthest landward edge of the buffer cannot be achieved, the trail must:

i. Not be placed any closer than 100 feet from the White River, meaning the 20-foot trail right-of-way will be measured landward of 100 feet from the stream.
ii. Riparian buffer restoration will be implemented on both

sides of the trail within the 200-foot buffer.
iii. Riparian buffer restoration in the 100 feet between the trail and the stream will be in-place before construction of the trail.

d. On the City owned lots on the east bank of the White River, and wherever possible, the trail will be placed outside the 200-foot buffer.

e. Except where stated above in section (c, iii.), the buffer area between the trail and the White River shall be restored (as riparian buffer) in conjunction with, and preferably sooner than the development of the trail.

f. Access from the trail to White River, should be granted no more than every 300 feet.

i. The width of the water access trails should not exceed 36 inches
ii. All water access trails shall be unpaved.

g. The restoration and landscaping vegetation should be designed, installed and maintained to achieve full canopy cover over the trail and the access trails that lead to the White River.

h. Porous pavement shall be integrated as much as possible into the trail.

i. Stormwater runoff should be sheet flowed (as opposed to conveyed) through either an amended soil treatment and/ or vegetated filter and then into nearby vegetation.

j. The City shall encourage uses and/or implement measures that would reduce potential damage to buffer habitat and, such as: leash and cleaning of waste requirement for dogs, hours of use, trash cans, etc.

k. The City will fund and implement a regular maintenance program that will, at a minimum:

i. Remove trash and animal waste.
ii. Maintain the filtration function of the porous pavement (e.g. sweepers/ vacuums).
iii. Maintain the water quality function of the soil or vegetative filter used to treat stormwater runoff from the trail.

l. If, as the trail design advances, the above measures cannot be met the City should consult further with the Service.

2.8 Conservation Recommendations

Section 7(a)(1) of the ESA directs the Federal agencies to utilize their authorities to further the purposes of ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse affects of a proposed action in listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Consider initiating EHB 2514 (RCW 90.82) Watershed Planning for the Puyallup and White River (WRIA 10) and/or subbasin planning for the tributaries to the White River within the Action Area.

2. Continue to encourage new development and redevelopment to minimize impervious surface and/or effects of impervious surface through implementation of low impact development projects, such as the Hunt Subdivision pilot project.

3. Consider protection for riparian trees and other ecologically important vegetation when approving Habitat Management Plans.

3.0 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2));
- NOAA Fisheries must provide conservation recommendations for any Federal or State activity that may adversely affect EFH (§305(b)(4)(A));

- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters

include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.110). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g*., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Federally-managed Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

3.3 Proposed Actions

The proposed action and action area are detailed above in Sections 1.3 and 1.4 of this document. The action area includes habitats that have been designated as EFH for various life-history stages of chinook, coho, and pink salmon.

3.4 Effects of Proposed Actions

As described in detail in Section 2.1.3 of this document, the proposed action may result in detrimental short- and long-term impacts to a variety of habitat parameters. These adverse effects are:

1. Short-term degradation of habitat due to removal of riparian trees and vegetation.

2. Long-term loss of stream channel due to the installation and extension of culverts.

3.5 Conclusion

NOAA Fisheries believes that the proposed actions might adversely affect EFH for chinook salmon, coho salmon, and pink salmon.

3.6 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While the proposed action may adversely affect EFH as described above, NOAA Fisheries believes that the conservation measures incorporated into the project by the FHWA to address ESA concerns already minimize these effects to the maximum extent practicable. Therefore, conservation recommendations are not required.

3.7 Statutory Response Requirement

Since NOAA Fisheries is not providing conservation recommendations at this time, no 30-day response from the FHWA is required (MSA) §305(b)(4)(B)).

3.8 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

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